CHAPTER 9
SUSTAINABILITY PLAN

9.1 INTRODUCTION

Shea/Baker Ranch includes a variety of sustainable and "green" building practices to reduce greenhouse gas emissions. Sustainable development and "green" building are related concepts, but they are not the same thing. Sustainable development recognizes the interdependence of man and the environment within the context of a healthy economy and a healthy community. "Green" building focuses on the building techniques that may be employed to reduce use of resources and materials. Shea/Baker Ranch incorporates both sustainable development practices and "green" building techniques to create a healthy community.

9.2 BACKGROUND

The Program Environmental Impact Report for the Opportunities Study Area (OSA PEIR) analyzed the effects of greenhouse gas emissions expected to result from the projects contained within the OSA. The potential impacts resulting from development of the land uses within Shea/Baker Ranch were considered as part of this PEIR. In an effort to reduce the effects of greenhouse gas emissions, and thereby sustain the environment in which we live, the PEIR incorporated project design features and mitigation measures to be implemented with development of the land area contained within the OSA. These features and mitigation measures are designed to reduce greenhouse gas emissions through control of specific pollutants and reduction of energy and water use.

Subsequent to the approval of the OSA PEIR, the state of California adopted the 2010 California Green Buildings Standards Code, known as "CalGreen," as part of the state Building Standards Code in Title 24 of the California Code of Regulations. The City of Lake Forest, in its adoption of the latest building code, also adopted these regulations. The CalGreen Code sets higher standards for incorporating sustainable measures into the built environment. These measures include many features and specific requirements to reduce energy use by approximately 15% below previous standards and landscape water consumption by approximately 50%.

The Air Quality Analysis prepared by LSA Associates, Inc. in December 2011 as part of the environmental analysis of the project recommended certain specific Project Design Features. These design features are included in the Development Standards at the end of this Chapter. Through project design elements, compliance with the project design features and the relevant

mitigation measures contained with in the OSA PEIR and compliance with the CalGreen Code, Shea/Baker Ranch will exceed the sustainability levels anticipated in the OSA PEIR.

9.3 SUSTAINABILITY AND GREEN BUILDING MEASURES

9.3.1 Site Design Features

Several characteristics of the project are important sustainable features.

- Shea/Baker Ranch is located within the framework of existing development, which reduces the need for unplanned road and infrastructure extensions and reduces vehicle miles traveled to reach goods, services and employment.

- The property is close to the job centers in both Lake Forest and the City of Irvine. Both of these communities are considered very jobs rich. Shea/Baker Ranch is located immediately east of the existing regional shopping center within the Foothill Ranch area of Lake Forest, providing goods and services needed for everyday life within a very short distance.

- Design of the land use plan for Shea/Baker Ranch responds directly to the existing landform, thereby reducing the need for grading or for import or export of soil. The hills east of the site remain in place. The hill form in the central portion of the site is rounded to create development pads, but is not eliminated. Additionally, the final number of dwelling units and the amount of commercial square feet proposed within the community has been reduced from the amount allowed under the approved zoning. This will result in the use of less building material and less construction, and so fewer construction-related vehicle trips. This reduction in the number of homes results in fewer residents in the community than contemplated in the OSA PEIR. All of these combine to reduce the carbon footprint of Shea/Baker Ranch.

Shea/Baker Ranch places emphasis on connectivity by providing pedestrian and bicycle mobility throughout the community. Connecting internal bicycle lanes to the surrounding citywide bike lane system enhances the ease of bicycle commuting and recreational riding. Walking paths that connect all areas of Shea/Baker Ranch, including providing a park within a five-minute walk of every home, encourages pedestrian movement.

9.3.2 Project Design Features from the OSA PEIR

Project Design Feature 1 - The two recreational centers proposed within Shea/Baker Ranch shall be designed and constructed to include a photovoltaic system to reduce energy consumption.

Subsequent modifications to the design of Shea/Baker Ranch have increased the number of recreation centers to three. Two of these will include photovoltaic systems to reduce their energy demand.

Project Design Feature 2 - Residential development shall be constructed with the following features to reduce energy consumption so long as they pose no conflict with applicable Building Code requirements: installation of a majority of Energy Star appliances; installation of high efficiency HVAC equipment with SEER rating of 13 or higher and TXV valve; installation of vinyl frame windows with dual pane low emissivity glass; installation of natural gas clean burning fireplaces; installation of water efficient plumbing fixtures to reduce water consumption; and provision of an option to the homeowner to include electric vehicle charging facilities in the residence garage.

In addition to the features listed above, the new CalGreen Code requires many specific measures be designed and built into homes to reduce water and energy consumption, and to reduce the emission of target pollutants. These new measures include, among others:

A 20% reduction in water consumption through:

- Water efficient plumbing fixtures
- Weather-based automatic irrigation systems

Reduction of targeted air-borne pollutants through:

- Requiring the following items meet low volatile organic compound standards: adhesives, sealants, caulks, paints, stains, carpets, and a minimum of resilient flooring.
- Aerosol paints and coatings must meet standards for reactive organic compounds.
- Only low formaldehyde particleboard, medium density fiberboard, and hardwood plywood may be used in interiors of homes.
- Air handling ducts must be covered during construction.

Project Design Feature 3 - Bicycle lanes and walking paths shall be incorporated into the street system of new residential development to provide alternative circulation routes to reach logical points of destination such as schools, parks, and retail areas.

The streets within Shea/Baker Ranch have been designed with an extensive trail network to emphasize pedestrian mobility as described in Section 7.3, Pedestrian Connectivity and Trails. These trails incorporate specific design features to create a pleasant pedestrian experience to encourage walking, such as parkways separating the walk from vehicular travel lanes to enhance safety and shade trees to reduce the heat island effect of the road. In addition to the trails along streets, there are additional trails through the Central Linear Park and paseos through some

neighborhoods that enable residents to move freely throughout the community. Overall, the community includes over three miles of trails that connect the homes to all parks, to the retail center, and the open space adjacent to the site.

All arterial and collector streets within Shea/Baker Ranch provide bicycle lanes. These six-plus miles of bicycle lanes allow for ease of recreational and commuter biking.

9.4 SUSTAINABILITY DEVELOPMENT STANDARDS

Compliance with the OSA PEIR mitigation measures and the Project Design Features document in the Air Quality Analysis will be achieved through the following development standards.

Construction and Building Materials:

1. Recycle/reuse at least 50% of the demolished and /or grubbed construction material (including but not limited to, soil, mulch, vegetation, concrete, lumber, metal and cardboard). This shall be documented through submission of a construction waste management plan for review and approval of the Development Services Director prior to issuance of a building permit.

2. Use "Green Building Materials," such as those materials that are rapidly renewable or resource efficient, and recycled and manufactured in an environmentally friendly way, for at least 10% of the project, as defined on the CalRecycle website (www.calrecycle.ca.gov/).

Energy Efficiency Measures:

3. Design all project buildings to exceed the 2010 California Building Code's (CBC) Title 24 2008 energy standard by 15%, including, but not limited to any combination of the following:

    - Increase insulation, such that heat transfer and thermal bridging is minimized;
    - Limit air leakage through the structure or within the heating and cooling distribution system to minimize energy consumption, and;
    - Incorporate ENERGY STAR or better rated windows, space heating and cooling equipment, appliances, or other applicable electrical equipment.

4. Install efficient lighting and offer lighting control systems as an option. Use daylight as an integral part of the lighting systems in buildings.

5. Install energy efficient heating and cooling systems, appliances and equipment, and control systems

6. Install outdoor lighting that meets the City of Lake Forest City Code Section 9-97.

7. Traffic signals installed as part of Shea/Baker Ranch shall use LED technology.

8. Street lights installed as part of the Shea/Baker Ranch development shall be energy efficient and shall reduce the energy requirements a minimum of 10% below the 2007 baseline energy use for street lights.

Water Conservation and Efficiency Measures:

9. Devise a comprehensive water conservation strategy appropriate for the project and its location and in compliance with City of Lake Forest Water Efficient Landscape Ordinance No. 207. (The water conservation strategy is contained within this Area Plan in Chapter 7, Section 7.1.1. Please refer to that section for specific requirements within Shea/Baker Ranch.). The strategy may include the following, plus other innovative measures that might be appropriate:

    - Provide drought tolerant plants for landscaping within the development.

    - Use reclaimed water for landscape irrigation within the project. Install the infrastructure to deliver and use reclaimed water.

    - Install water-efficient irrigation systems, such as weather –based and soil-moisture-based irrigation controllers and sensors, for landscaping according to City of Lake Forest Landscaping Ordinance or California Department of Water Resources Model Efficient Landscape Ordinance.

Solid Waste Measures:

10. To facilitate and encourage recycling to reduce landfill-associated emissions among others, the project shall provide trash enclosures that include additional enclosed area(s) for collection of recyclable materials. The recycling collection area(s) shall be located within, near, or adjacent to each trash and rubbish disposal area. The recycling collection area shall be a minimum of 50 % of the area provided for the trash/rubbish enclosure(s)

Alternative Modes of Transportation:

11. To facilitate and encourage non-motorized transportation, bicycle racks shall be provided in convenient locations to facilitate bicycle access to the project area. The bicycle racks shall be shown on project landscaping and improvement plans submitted for Planning Department approval, and shall be installed in accordance with those plans.

12. The retail center shall designate priority parking for electric, hybrid and alternative fuel vehicles.

13. Implement pedestrian and connectivity as provided on Tentative Tract Map 16466 and this Area Plan.